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10/040,567

Arguments and Comments

6 I. Regarding the objections of the drawings and the specification please delete the reference character "1" in the description into "12"; please delete the word "cores" in the abstract into "core"; and please delete the word "nomex" in the specification into "that known under the Registered Trademark - <sup>NOMEX</sup>~~nomex~~".

11 II Regarding the claim rejections under 35 USC 102 and 35 USC 103, we amended the claims and wish to submit our comments against the examiner's rejection reasons with as below:

16 The feature of the semi sandwich panel according to the present invention are to have a lightness and strength by installing core materials with a predetermined volume into corresponding positions within the semi sandwich. For this, as shown in Figures 1 and 2, the semi sandwich of the present invention comprises surface finishing materials 12 folded with each other, and a core materials 14 which are inserted into predetermined positions such as edges and/or portions across the edges.

21 The surface finishing materials are made of one of a glass fiber, carbon fiber, a synthetic fiber and an aramid fiber. Also, the core material is formed by impregnating one of an aluminum honeycomb, a synthetic paper honeycomb, a paper honeycomb, a urethane foam and an acrylic foam into phenol or epoxy resin.

26 When the core materials 14 are inserted into the surface finishing materials 14, they are protruded one side of the surface thereof, as shown in Figures 1 through 6. Namely, the core materials are inserted into corresponding positions to strengthen the panel, thereby being light.

31 Further, as shown in Figure 3, the semi sandwich panel of the present invention has an insert nut 16 within the core material 14 to externally connect other structure body thereto.

However, Higgins patent (USP No. 4,800,643) relates to a method of forming

a permanent mounting for a bolt in a lightweight honeycomb panel, which is achieved as below; as shown in Figure 2, a bore hole 42 is drilled into the panel 34 and is filled with a quick setting resin material such as an epoxy 44. Next an insert fastener 10 is inserted into the bore hole 42 containing the epoxy as shown in Figures 3 and 4 until the epoxy is emanated from the bore hole 42. After the epoxy is solidified in the bore hole, the insert fastener is fixed to the panel. Therefore, the bolt 44 is easily connected to the bore hole 42 with an accessory device 46.

Also, the structure of the panel formed by the method of Higgins does not include portions attaching only between the surface finishing materials and does not teach any clue of the concept of the present invention, which is not quite different from that of the present invention. Instead Higgins just discloses the method of easily forming the insert fastener to the panel.

Even though the Examiner indicated that Higgins discloses a honeycomb core material 40 inserted into a portion which needs strength and intensity between surface finishing materials 36 and 38 made of a carbon fiber, and an insert 10 in the honeycomb core material between the surface finishing materials, which is formed in an edge of the inner surface of the surface finishing materials, the size of the honeycomb core material 40 within the surface finishing materials was neither disclosed nor taught by the specification and the drawings.

Therefore, the structure of the semi sandwich panel of the present invention is quite different from that of Higgins.

Also, the method of forming the insert fastener and the structure formed thereby disclosed in Higgins are quite different from those of the fastener such as insert nut according to the present invention.

Else, Higgins does not disclose the materials for forming the core materials and the surface finishing materials like the present invention.

Meanwhile, Wilson patent (USP No. 5,543,198) relates to a noise attenuation panel for reducing noises in aero engines. For this, as shown in Figure 1, the panel 10 of Wilson includes a backing sheet 11, facing sheets 13 and 14, and a cellular core 12 having a multiplicity of open-ended juxtaposed cells 15.

As disclosed the drawings and to effectively achieve the objects of Wilson's

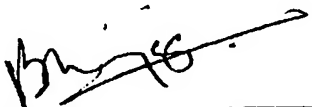
invention, the noise attenuation panel must have the cellular core 12 to fold with the backing sheet and the facing sheets as much as the same size. Thereby any noise is effectively absorbed by the cellular core, the backing sheet and the facing sheets.

6 Here, of the facing sheets, an inner facing sheet 13 is made from an open square weave fabric formed from a carbon fiber/resin matrix composite material and the weave is such as to provide apertures constituted by the openings between adjacent warp and weft threads of the fabric. The fabric is preferably so woven as to produce a proportion of open aperture area relative to the total surface area of the sheet of around 30%. Also, an outer facing sheet 14 includes a sheet of a porous permeable thermoplastics materials produced by powder sintering the thermoplastic.

Therefore, the structure of the noise attenuation panel of Wilson is quite different from that of the present invention, and the materials of the panel between Wilson and the present invention.

16 Accordingly, the features of the present invention would not be easily invented by combining Wilson's patent (USP No. 5,543,198) with Higgins' patent (USP No. 4,800,643).

21 It is, accordingly, solicited that this patent application with its inventive merit, proceed to grant of a patent, which is respectfully requested.  
Respectfully submitted,

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